

Form PTO-1449 (Modified)		AUG 10 2004 U.S. PATENT & TRADEMARK OFFICE	Atty Docket No.	Serial No.
<b>LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT</b>			UNICP0103USA	10/646,202
(Use several sheets if necessary)		Applicant:		
		Izatt et al.		
		Filing Date	Group	
		08/22/03	2877	

## U.S. PATENT DOCUMENTS

Examiner Initial	Document Number	Date (MM/YYYY)	Name	Class	Sub-class	Filing Date If Appropriate
SAT	6,501,551	12/2002	Tearney et al.	356	477	
↑	5,956,355	09/1999	Swanson et al.	372	479	
	6,134,003	10/2000	Tearney et al.	365	345	
	6,175,669	01/2001	Colston et al.	385	12	
	6,088,491	07/2000	Sorin et al.	385	11	
	5,644,642	07/1997	Kirschbaum	382	103	
	5,565,986	10/1996	Knüttel	356	346	
	5,549,114	08/1996	Petersen et al.	128	691	
	5,501,226	03/1996	Petersen et al.	128	691	
	5,493,109	02/1996	Wei et al.	250	201	
	5,491,524	02/1996	Hellmuth et al.	351	212	
	5,459,570	10/1995	Swanson et al.	356	345	
	5,353,802	10/1994	Ollmar	128	734	
	5,200,819	04/1993	Nudelman et al.	358	98	
	5,158,090	10/1992	Waldman et al.	128	664	
	4,063,549	12/1977	Beretsky et al.	128	2	
↓	5,535,000	07/1996	Shirasaki	356	345	
SAT	5,894,531	04/1999	Alcoz	385	11	

## FOREIGN PATENT DOCUMENTS

Examiner Initial	Document Number	Date (MM/YYYY)	Country	Class	Sub-class	Translation	
						Yes	No
SAT	W00069333A	23/11/00	PCT				
SAT	WO 97/32182	09/04/97	PCT				

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## OTHER ART

Examiner Initial	Author, Title, Date, Pertinent Pages, etc.
SAT	Michael R. Hee, Joseph A. Izatt, Joseph M. Jacobson and James G. Fujimoto; "Femtosecond Transillumination Optical Coherence Tomography"; June 15, 1993, Vol 18, No. 12 " <u>Optics Letters</u> ", pages 950-952
↑	Everett M.J. et al.; "Non-invasive Diagnosis of Early Caries with Polarization Sensitive Optical Coherence Tomography", Proceedings of the SPIE, SPIE, Bellingham, VA, US, Vol. 3593, 24 January 1999, pages 177-182, XP000931184, Chapter 3, pages 178-179, Figure 1
	Podoleanu A.G. et al.; "Simultaneous En-Face Imaging of Two Layers in the Human Retina by Low-Coherence Reflectometry", Optics Letters, Optical Society of America, Washington, US, Vol. 22, No. 13, 1 July 1997, pages 1039-1041, XP000658709
	Podoleanu A.G. et al.; "Simultaneous Low coherence Interferometry Imaging at Two Depths Using An Integrated Optic Modulator", Optics Communications, North-Holland Publishing Co., Amsterdam, NL, VOL. 191, NO. 1-2, 1 May 2001, pages 21-30, XP004234990
	Boer, De J.F. et al.; "Polarization Effects in Optical Coherence Tomography of Various Biological Tissues", IEEE Journal of Selected Topics in Quantum Electronics, IEEE Service Center, US, Vol 5, No. 4, July 1999, pages 1200-1203, XP00893469, Chapter III, pages 1200-1201, Figure 1
	Deconvolution and Enhancement of Optical Coherence Tomograms, J.M. Schmitt et al., SPIE, Vol. 2981, pages 46-57, 64-75 (02/1997)
	Phase-Only Blind Deconvolution Using Bicepstrum Iterative Reconstruction Algorithm (BIRA), R.S. Holambe et al., <u>IEEE Transactions on Signal Processing</u> , Vol 44, No. 9, pages 2356-2359 (09/1996)
	In Vivo Endoscopic OCT Imaging of Precancer and Cancer Sates of Human Mucosa, A.M. Sergeev et al., <u>Optics Express</u> , Vol. 1, No. 13, pages 432-440 (12/1997)
	Comparison of Some Non-Adaptive Deconvolution Techniques for Resolution Enhancement of Ultrasonic Data, G. Hayward et al., <u>Ultrasonics</u> , Vol. 27, pages 155-164 (05/1989)
	Supperresolution Three-Dimensional Images of Fluorescence in Cells with Minimal Light Exposure, W.A. Carrington et al., <u>Science</u> , Vol. 268, pages 1483-1487 (06/1995)
	Optical Coherence Tomography of Scattering Media Using Frequency Modulated Continuous Wave Techniques with Tunable Near-Infrared Laser, U. Haberland et al., SPIE, Vol. 2981 (Proceedings of Coherence Domain Optical Methods in Biomedical Science and Clinical Applications), pages 20-28 (02/1997)
	Constrained Iterative Restoration Algorithms, R.W. Schafer et al., <u>Proceedings of the IEEE</u> , Vol. 69, No. 4, pages 432-450 (04/1981)
	Blindness Limitations in Optical Coherence Domain Reflectometry, S.R. Chinn et al., <u>Electronics Letters</u> , Vol. 23, pages 2025-2027 (11/1993)
	Optical Coherence Tomography, D. Huang et al., <u>Science</u> , Vol. 254, pages 1178-1181 (11/1991)
	Systems and Transforms with Applications in Optics, A. Papoulis, pages 254-293, McGraw-Hill Book Co. (1968)
	Maximum-Likelihood Deconvolution, A Journey into Model-Based Signal Processing, J.M. Mendel, pages 1-77, Springer-Verlag New York, Inc. (1990)
SAT	Fundamentals of Statistical Signal Processing: <u>Estimation Theory</u> , S.M. Kay, pages 364-371 (1993)

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Examiner Initial	Author, Title, Date, Pertinent Pages, etc.
SAT	Low-coherence Optical Tomography in Turbid Tissue: Theoretical Analysis, Y. Pan et al., <u>Applied Optics</u> , Vol. 34, No. 28, pages 6564-6574 (10/1995)
↑	Micrometer-Scale Resolution Imaging of the Anterior Eye in Vivo with Optical Coherence Tomography, J.A. Izatt et al., <u>Arch Ophthalmol</u> , Vol. 112, pages 1584-1589 (12/1994)
	Optical Coherence-Domain Reflectometry: A New Optical Evaluation Technique, R.C. Youngquist et al., <u>Optics Letters</u> , Vol. 12, No. 3, pages 158-160 (1987)
	Spatially Coherent White-light Interferometer Based on a Point Fluorescent Source, H. Liu et al., <u>Optics Letters</u> , Vol. 18, No. 9, pages 678-680 (05/1993)
	High-resolution Reflectometry in Biological Tissues, X. Clivaz et al., <u>Optics Letters</u> , Vol. 17, No. 1, pages 4-6 (01/1992)
	Optical Low Coherence Reflectometry with 1.9 μm Spatial Resolution, X. Clivaz et al., <u>Electronics Letters</u> , Vol. 28, No. 16, pages 1553-1555 (07/1992)
	High-speed Optical Coherence Domain Reflectometry, E.A. Swanson et al., <u>Optics Letters</u> , Vol. 17, No. 2, pages 151-153 (01/1992)
	Optical-Coherence Tomography of a Dense Tissue: Statistics of Attenuation and Backscattering, J.M. Schmitt et al., <u>Phys. Med. Biol.</u> , 39, pages 1705-1720 (1994)
	High-Resolution optical coherence tomographic Imaging Using a Mode-locked Ti:A1 <sub>2</sub> O <sub>3</sub> Laser Source, B. Bouma et al., <u>Optics Letters</u> , Vol 20, No. 13, pages 1486-1488 (07/1995)
	Self-phase-modulated Kerr-lens Mode-locked Cr: forsterite Laser Source for Optical Coherence Tomography, B.E. Bouma et al., <u>Optics Letters</u> , Vol. 21, No. 22, pages 1839-1841 (11/1996)
	High-speed Phase- and Group-delay Scanning with a Grating-based Phase Control Delay Line, G.J. Tearney et al., <u>Optics Letters</u> , Vol. 22, No. 23, pages 1811-1813 (12/1997)
	Optical Coherence Tomography Using a Frequency-Tunable Optical Source, S.R. Chinn et al., <u>Optics Letters</u> , Vol. 22, No. 5, pages 340-342 (03/1997)
	Tissue Optics, D.A. Benaron et al., <u>Science</u> , Vol. 276, pages 2002-2003 (06/1997)
	In Vivo Endoscopic Optical Biopsy with Optical Coherence Tomography, G.J. Tearney, <u>Science</u> , No. 276, pages 2037-2039 (06/1997)
	Fast Algorithms for 1 <sub>p</sub> Deconvolution, R. Yarlagadda et al., <u>IEEE Transactions on Acoustics, Speech, and Signal Processing</u> , Vol. ASSP-33, No. 1, pages 174-182 (02/1985)
	The Design of High-Resolution Digital Filters, S. Treitel et al., <u>IEEE Transactions on Geoscience Electronics</u> , Vol. GE-4, No. 1, pages 25-38 (06/1966)
	A Comprehensive Solution to the Linear Deconvolution Problem, D.W. Oldenburg, <u>Geophys. J.R. astr. Soc.</u> , 65, pages 331-357 (1981)
	Digital Processing of Ultrasonic Data by Deconvolution, E.E. Hundt et al., <u>IEEE Transactions on Sonics and Ultrasonics</u> , Vol. SU-27, No. 5, pages 249-252 (09/1980)
↓	Sternad: Wiener Filter Design Using Polynomial Equations, A. Ahlén et al., <u>IEEE Transactions on Signal Processing</u> , Vol. 39, No. 11, pages 2387-2399 (pages 2388-2389 missing) (11/1991)
SAT	Maximum Likelihood Estimation of the Attenuated Ultrasound Pulse, K.B. Rasmussen, <u>IEEE Transactions on Signal Processing</u> , Vol. 42, No. 1, pages 220-222 (01/1994)

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SAT	Deconvolution of In Vivo Ultrasound Images, J.A.. Jensen, 1990 Ultrasonics Symposium, pages 1581-1587 (1990)
↑	An Iterative Restoration Technique, S. Singh, et al., <u>Signal Processing</u> , 11, pages 1-11 (1986)
	Video Rate Optical Coherence Tomography, A.M. Rollins et al., Advances in Optical Imaging & Photon Migration, Trends in Optics & Photonics, Optical Society of America, from the topical meeting March 8-11, 1998, Orlando, Florida (1998)
	Micron-Resolution Biomedical Imaging with Optical Coherence Tomography, J. Izatt et al., <u>Optics &amp; Photonics News</u> (10/1993)
	Characterization of Fluid Flow Velocity by Optical Doppler Tomography, X. Wang et al., <u>Optics Letters</u> , Vol. 20, No. 11 (06/01/1995)
	Optical Doppler Tomography Imaging of Fluid Flow Velocity in Highly Scattered Media, Z. Chen et al., <u>Optics Letters</u> , Vol. 22, No. 1, pages 64-66 (01/01/1997)
	Distributed Laser Doppler Velocimeter, V. Gusmeroli et al., <u>Optics Letters</u> , Vol. 16, No. 17 (09/01/1991)
	Noninvasive Imaging of In Vivo Blood Flow Velocity Using Optical Doppler Tomography, Z. Chen et al., <u>Optics Letters</u> , Vol. 22, No. 14 (07/15/1997)
	Cleo '97: Summaries of papers presented at the Conference on Lasers and Electro-Optics, 1997 OSA Technical Digest Series, Vol. 11, Conference Edition, pages 211-212, Baltimore, MD (5/18-23/1997)
	Real-Time Two Dimensional Blood Flow Imaging using an Autocorrelation Technique, C. Kasai et al., <u>IEEE Transactions on Sonics and Ultrasonics</u> , Vol. SU-32, No. 3 (5/1985)
	Doppler Ultrasound: Physics, Instrumentation, and Clinical Applications, chapter 6: Basic Doppler Electronics and Signal Processing, D.H. Evans et al., Pages 84-107, John Wiley & Sons, New York (1989)
	Vascular Diagnosis, 4 <sup>th</sup> Ed., Chapter 12: Principles and pitfalls of real-time color flow imaging, F.W. Kremkau, pages 90-105, Mosby Year-Book, Inc., Missouri (1993)
	Vascular Diagnosis, 4 <sup>th</sup> Ed., Chapter 11: Pulsed Doppler Ultrasound for Blood Velocity Measurements, K.W. Beach et al., pages 83-89, Mosby Year-Book, Inc., Missouri (1993)
	Velocity-Estimation Accuracy and Frame-Rate Limitations in Color Doppler Optical Coherence Tomography, M.D. Kulkarni et al., <u>Optics Letters</u> , Vol. 23, No. 13 (07/01/1998)
	Investigating Laser-Blood Vessel Interaction with Color Doppler Optical Coherence Tomography, J.K. Barton et al., <u>Progress in Biomedical Optics: Proceedings of Coherence Domain Optical Methods in Biomedical Science and Clinical Applications II</u> , San Jose, CA <u>SPIE</u> , Vol. 3251 (1/27-28/1998)
↓	Diagnostic Blood Flow Monitoring during Therapeutic Interventions using Color Doppler Optical Coherence Tomography, S. Yazdanfar et al., <u>Progress in Biomedical Optics: Proceedings of Coherence Domain Optical Methods in Biomedical Science and Clinical Applications II</u> , San Jose, CA, <u>SPIE</u> , Vol. 3251 (1/27-28/1998)
SAT	High Resolution Imaging of In Vivo Cardiac Dynamics using Color Doppler Optical Coherence Tomography, S. Yazdanfar et al., <u>Optics Express</u> , Vol. 1, No. 13 (12/22/1997)

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SAT	In Vivo Bidirectional Color Doppler Flow Imaging of Picoliter Blood Volumes using Optical Coherence Tomography, J.A. Izatt et al., <u>Optics Letters</u> , Vol. 22, No. 18 (9/15/1997)
↑	In Vivo Doppler Flow Imaging of Picoliter Blood Volumes using Optical Coherence Tomography, J.A. Izatt et al., <u>Cleo '97: Summaries of papers presented at the Conference on Lasers and Electro-Optics, 1997 OSA Technical Digest Series</u> , Vol 11, Conference Edition, Baltimore, MD (5/18-23/1997)
	Optical Coherence Tomography for Biodiagnostics, J.A. Izatt et al., <u>Optics &amp; Photonics News</u> (05/1997)
	Doppler Flow Imaging Using Optical Coherence Tomography, J.A. Izatt et al., <u>Cleo '96 Postdeadline Papers, Conference on Lasers and Electro-Optics</u> , Anaheim, CA (6/02-7/1996)
	Model for Laser Doppler Measurements of Blood Flow in Tissue, R. Bonner et al., <u>Applied Optics</u> , Vol. 20, No. 12 (6/15/1981)
	Time-resolved Studies of Stimulated Emission from Colloidal Dye Solutions, M. Siddique et al., <u>Optics Letters</u> , Vol. 21, No. 7 (04/01/1996)
	Laser Action in Polymeric Gain Media Containing Scattering Particles, R.M. Balachandran et al., <u>Applied Optics</u> , Vol. 35, No. 4 (02/01/1996)
	Laser Action in Strongly Scattering Media, N.M. Lawandy et al., <u>Nature</u> , Vol. 368 (03/31/1994)
	Three Ways to Implement Interferential Techniques: Application to Measurements of Chromatic Dispersion, Birefringence, and Nonlinear Susceptibilities, P.L. Francois et al., <u>Journal of Lightwave Technology</u> , Vol. 7, No. 3 (3/1989)
	Precise Characterization of the Raman nonlinearity in Benzene using Nonlinear Interferometry, A. Owyong et al., <u>Journal of Applied Physics</u> , Vol. 48, No. 2 (2/1977)
	Simultaneous Measurement of Dispersion, Spectrum, and Distance with a Fourier Transform Spectrometer, T. Hellmuth et al., <u>Journal of Biomedical Optics</u> , Vol. 3, No. 1 (1/1998)
	Ultrasonic Tissue Characterization of Uveal Melanoma and Prediction of Patient Survival After Enucleation and Brachytherapy, D.J. Coleman et al., <u>American Journal of Ophthalmology</u> , 112; pages 682-688 (12/1991)
	Correlations of Acoustic Tissue Typing of Malignant Melanoma and Histopathologic Features as a Predictor of Death, D.J. Coleman et al., <u>American Journal of Ophthalmology</u> , pages 110; 380-388 (10/1990)
	Theoretical Framework for Spectrum Analysis in Ultrasonic Tissue Characterization, F.L. Lizzi et al., <u>J. Acoust. Soc. Am.</u> , pages 73(4) (04/1983)
	Spectroscopic Optical Coherence Tomography, M.D. Kulkarni et al., <u>Conference on Lasers and Electro-Optics, Vol. 9 1996 Technical Digest Series Conference Edition</u> (6/2 - 7/1996)
↓	Diagnostic Spectrum Analysis in Ophthalmology: A Physical Perspective, E.J. Feleppa, <u>Ultrasound in Med. &amp; Biol.</u> , Vol. 12, No. 8 (1986)
SAT	Noninvasive Identification of Bladder Cancer with Sub-surface Backscattered Light, I.J. Bigio et al., <u>Progress in Biomedical Optics: Proceedings of Advances in Laser and Light Spectroscopy to Diagnose Cancer and Other Diseases</u> , Los Angeles, CA (1/23-24/1994)

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Examiner Initial	Author, Title, Date, Pertinent Pages, etc.
SAT	Detection of Gastrointestinal Cancer by Elastic Scattering and Absorption Spectroscopies with the Los Alamos Optical Biopsy System, <u>Progress in Biomedical Optics: Proceedings of Advances in Laser and Light Spectroscopy to Diagnose Cancer and Other Diseases II</u> , San Jose, CA (2/7-8/1995)
↑	Rapid Near-Infrared Raman Spectroscopy of Human Tissue with a Spectrograph and CCD Detector, J.J. Baraga, <u>Applied Spectroscopy</u> , Vol. 46, No. 2 (1992)
↓	Theoretical and Experimental Investigations of Elastic Scattering Spectroscopy as a Potential Diagnostic for Tissue Pathologies, J. Boyer et al., <u>OSA Proceedings on Advances in Optical Imaging and Photon Migration</u> , Vol. 21, Orlando, FL (3/21-23/1994)
SAT	Notification of Transmittal of the International Search Report or the Declaration in PCT Application Serial No. US99/20670, dated 07 February 2000

EXAMINER	S.A. TIANEN	DATE CONSIDERED	2-1-05
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EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 509; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

#### Information Disclosure Statement PTO-1449 (Modified)

The identification of any reference is not intended to be, and should not be understood as being, an admission that such publication, in fact, constitutes "prior art" within the meaning of applicable law since, for example, a given reference may have a later effective date than first seems apparent or the reference may have an effective date which can be antedated. The "prior art" status of any reference is a matter to be resolved during prosecution.